

Redline/Strikeout

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DOG M 1/22/96  
see file 5/635/012  
(Parkys Contracting)*

**NOTICE OF INTENTION  
TO  
COMMENCE LARGE MINING OPERATIONS  
HARPER CONTRACTING**

Submitted by:

Harper Contracting, Inc.  
P.O. Box 18400  
Kearns, UT 84118

Prepared by:

JBR Environmental Consultants, Inc.  
8160 S. Highland Drive  
Sandy, Utah 84093  
(801) 943-4144

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#### **Attachments**

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**NOTICE OF INTENTION  
TO  
COMMENCE LARGE MINING OPERATIONS  
HARPER CONTRACTING, INC.**

This notice is submitted to the Utah Division of Oil, Gas and Mining in compliance with part R647-4-103 of the Utah Minerals Reclamation Program.

**1.0 Owner Information**

The owner of the land for the proposed quarry and processing area is:

Rock and Roll Land Company, a Utah Corporation  
P.O. Box 3000  
Park City, Utah 84060  
(801) 649-9865

The operator of the property would be:

Harper Contracting, Inc.  
4655 West 5415 South  
P.O. Box 18400  
Kearns, Utah 84118  
(801) 250-0132

Mining and processing would take place on the following claims and lease:

- **State Limestone Lease, ML - 45599**
- **Union Limestone, MS NO. 5710, Patented**
- **Portland Cement NO. 1 Placer, MS NO. 4269-1, Patented**
- **Portland Cement NO. 2 Placer, MS NO. 4269-2, Patented**
- **Compromise Patented Claim**

Initial access to the proposed pit would be through the use of an existing fire road constructed on United States Forest Service property. As mining progresses in the pit, additional access roads may be constructed on United States Forest Service property and on the Union

Limestone Claim. The Forest Service has granted permission for temporary use of the access road. Harper Contracting has filed a Special-Use Application for project life use of the access road according to guidance provided by the Forest Service.

## **2.0 Project Location and Access**

The quarry is located in the SW 1/4 Section 18, and the NW 1/4 Section 19, T1S, R2E SLBM, Salt Lake County. The proposed operations are located well in excess of 200 feet from any residential zone or subdivision and more than 50 feet from Interstate 80.

Vehicle traffic to and from the quarry is gained through the use of an existing ramps connecting to Interstate 80. These ramps are immediately adjacent to the operations and allow for transportation of materials to the Salt Lake Valley.

Future vehicle travel to and from the operations from the east may be possible through use of an existing overpass located approximately 0.4 miles east of the quarry and construction of ramps connecting to I-80. This potential access is connected to the quarry with an existing road along the north side of the highway. Use of these ramps northeast of the quarry would provide improved transportation considerations for construction projects east of the quarry. Arrangements would be made with the state and federal transportation authorities for construction and use of these eastern ramps.

## **3.0 Previous Operations**

The existing quarry was operated previous to 1985 by Lone Star Industries and the Portland Cement Company as a source of limestone for cement production. The current quarry configuration consists of a flat area between the highway and the mountain slope that was the site of the former truck loading area. Above the former loading area is the entrance to the main quarry floor which itself is bounded on the east and north by tall, steep highwalls. The quarry is open to the main canyon on its south side and connects to a series of mine benches on its west side. A road along the west side of the quarry leads uphill to the north and east of the main quarry where it intersects with a number of mine benches and small, vertical highwalls that overlook the main quarry. These previous quarrying operations resulted in a total disturbed area of approximately 3560.4 acres. Plate 1 of this Notice of Intention shows the details of the areas previously disturbed.

The previous limestone operations were permitted by the Division of Oil, Gas and Mining (DOGM). Operations by Lone Star were shut down in 1985 and reclamation of the site was undertaken by Lone Star in 1988 according to an agreement with the DOGM. This consisted of a general site cleanup including demolition and removal of all equipment and buildings. Compacted surfaces on the benches and haul roads were scarified and apparently reseeded, although the revegetation success has been very minimal. No slope regrading or site re-contouring was conducted and the quarry slopes, roads and other topography are essentially in the same condition

as when operations were terminated. A 1991 inspection of the site by the DOGM indicated that the reclamation goals of the permit had been achieved although the revegetation release is apparently still pending.

Harper Contracting, Inc. has been operating at the site intermittently over the last three years. Operations by Harper at this location have consisted of drilling and blasting limestone, dozing material, and crushing and screening of mined material. The products are used as construction aggregate and for landscaping purposes. The material mined to date by Harper Contracting Inc. is minimal.

#### **4.0 Operation Plan**

##### **4.1 Type of Mineral to be Mined**

The material to be mined is limestone. Products from the operations would include: road base, sewer rock, concrete aggregate, engineered fill, run of mine (ROM), and landscape rock. The quantities of each of the products to be produced is dependant on available markets.

##### **4.2 Type of Operations to be Conducted**

Operations to be conducted would begin with drilling of blastholes. Blasthole drilling would be accomplished principally through the use of airtrack drills, although a larger production drill may be used to meet production requirements. The number of air tracks used would vary according to production, but would not exceed a maximum of three. A maximum of one large production drill would be used in the event that production requires more than the air tracks can produce. Blasting of material would be completed through loading the holes drilled with Ammonium Nitrate Fuel Oil (ANFO).

Once blasted, the material would be pushed with a dozer to the southwest mining pit edge where it would run down a slope to the pit floor of previous quarry operations (Harper operations area). The material is then removed through the use of a front end loader for direct shipment as either landscape rock or ROM fill material, or it is transferred to a crushing/screening plant for further processing.

The crushing/screening plant would consist of: a cone crusher, a jaw crusher, a three deck screen, and associated conveying equipment. This equipment would also be located in the existing quarry pit floor operations area. The various products produced would be placed in stockpiles. The products would be removed from the stockpile and loaded into trucks to be hauled off-site.

There would be no acid forming or deleterious material present at this site. Therefore, no deleterious or acid forming material would be left on-site.

### 4.3 Disturbed Area

Mining operations would initiate in a previously mined area which was left relatively flat. This area is within the northwest boundaries of the previously disturbed areas (see Plate 1). The area, in plan view, currently measures approximately one and one-half 1.4 acres. The mined material is pushed to the edge of a slope slide where it runs down a natural grade to the existing quarry pit floor. The current area of this slope slide in plan view is approximately 1.25 1.3 acres. Each operating year, the surface area will increase to a maximum of 1.6 acres. The amount of increase in surface area is dependant upon market demands for the limestone. The final area of the pit and slide will be approximately 13 13.4 acres. All new mining will be completed within the boundaries of areas previously disturbed. Plates 3 and 4, and 5 of this Notice of Intention show the current and future areas to be disturbed by these proposed operations.

The processing facilities, stockpiles, equipment operating areas, and scales would be located in the previously disturbed area of the existing quarry pit floor and truck loadout area. The total area for these activities is approximately 4.55 6 acres (see plate 2).

The pit access roads starting from the frontage road to the pit are estimated to cover approximately 32.9 acres. Approximately one half of this area (1.6 acres) is on an existing road constructed mostly on United States Forest Service property. The remainder of the area to be covered by pit access roads will be newly constructed or reconstructed roads, mostly on private land owned/operated by the companies listed in Section 1.0 of this Notice of Intention.

The following table summarizes the areas described in this section:

Feature	Final Area (Acres)	Portion of Final Area Previously Disturbed <sup>1</sup> (Acres)	Newly Disturbed Area (Acres)	Area To Be Reclaimed (Acres)
Pit Limits				
- Highwall	6.3	5.1	1.2	4.4 <sup>2</sup>
- Floor	5.5	2.1	3.4	5.5
Access Roads	2.9	2.3	0.6	1.0
Ore Slide	1.6	1.6	0	0
Operations Area <sup>3</sup>	5.6	5.6	0	5.2 <sup>4</sup>
Totals	21.9	16.7	5.2	16.1

<sup>1</sup> The Final Area Previously Disturbed is the portion of the final disturbance area which currently is an existing disturbance caused by previous mining operations. The existing disturbance areas lack vegetation as

determined by review of aerial survey photographs.

\* Area to be reclaimed includes all mine benches. The difference between the total highwall area and the area to be reclaimed is a result of expected backslopes (73°) between the benches.

\* Operations Area includes areas used for stockpiling, loadouts, processing operations, scales, etc.

\* The operations area to be reclaimed excludes the portion of the operations area which is a county road. See Plate 4 of the NOI.

#### **4.4 Nature of the Materials to be Mined and Production Rates**

The material to be mined is only limestone. There is no topsoil to be moved and there is no waste/overburden to be removed. There may be a small percentage of material that does not meet specifications as a salable product. This material would remain in the quarry pit floor/operations area and be spread evenly on the quarry and/or sloped 3h:1v during reclamation.

The anticipated average production rate from the proposed operations is 250,000 tons per year, and the maximum production from these operations would not exceed 500,000 1,000,000 tons per year. Total maximum amount of material mined from the pit will be 6.5 million tons.

#### **4.5 Existing Soil Types**

There is no topsoil, or suitable plant growth material, available within the boundaries of the proposed pit. The surface of the area where mining is to take place is an area where mining operations have already been conducted in the past, leaving only limestone as the surface material. In addition, surrounding areas which have not been previously disturbed consist mainly of limestone outcroppings and limestone talus slopes.

#### **4.6 Plan for Protecting and Redepositing of Topsoils**

There is no plan for protecting and redepositing existing soils because there is no topsoil available.

#### **4.7 Existing Vegetative Cover Communities and Cover Levels, Revegetation**

The areas proposed to be re-disturbed are essentially not vegetated. Rule R647-4-111, Reclamation Practices, states that revegetation is required. An area is considered revegetated when it has achieved 70 percent of the pre-mining vegetative ground cover. In this case, there is no existing vegetative ground cover, therefore, this rule is not applicable to this proposed operation.

#### **4.8 Depth to Groundwater, Extent of Overburden Material and Geologic Setting**

The quarry is located about two miles up from the mouth of Parleys Canyon (and from the



edge of the alluvial valley fill of the Salt Lake Valley). The project area is characterized by Cretaceous and Pennsylvanian sedimentary rock. These formations exhibit moderately low permeability, the primary porosity of the sediments is slight and there is only minimal secondary porosity due to the presence of joints or fractures (Hely, et al, 1971).

Both the previous and proposed disturbances would occur in limestone bedrock materials that make up the steep, south facing slopes above Parleys Creek.

There are two intermittent springs located west of the operations on United States Forest Service property which, when flowing, may intersect, flow along side of, or cross the pit access road.

No drill hole records are available to show presence or absence of a water table or of perched zones of groundwater.

There is no overburden material to be removed. All material mined will be processed for shipment.

#### **4.9 Proposed Location and Size of Stockpiles**

Stockpiles of the various products to be produced would be maintained near the crushing screening operations of the existing quarry pit floor (Harper Operations Area). These stockpiles would include:

- Landscape Rock
- Engineered Fill
- ROM
- Sewer Rock
- Road Base
- Concrete Aggregate

The size of the individual stockpiles will vary. The combined maximum size of the stockpiles is not expected to exceed ~~50,000~~ 250,000 tons.

There will be no tailings facilities, and no water storage/treatment ponds.

#### **5.0 Operation Practices**

##### **5.1 Public Safety and Welfare**

All operations would be conducted in compliance with applicable OSHA and MSHA safety regulations. Health and safety measures that would be employed include the following:

- 1) Access to the active site would be controlled with fencing and gates at the main entrance point to the lower quarry. Earth barriers have already been constructed to prevent vehicle access to the non-active upper benches, and these would be maintained. Locked gates and No Trespassing and Warning signs would be posted and maintained at all access points to the quarry (see Plates 2 and 3).
- 2) Safety berms would be constructed above all active highwalls.
- 3) Blasting practices would be conducted in accordance with state and federal rules and in a manner to prevent fly rock outside the property limits and to assure compliance with the dust opacity limitations of the Division of Air Quality.
- 4) Trash, scrap metal, wood, buildings, and any extraneous debris attributed to the active mining would be removed and properly disposed of within one year of cessation of operations.
- 5) Any drill holes not used for blasting purposes would be plugged and capped according to the requirements of the Division of Oil, Gas and Mining.

## **5.2 Drainages**

See Section 6.1.1 of this NOI

## **5.3 Erosion Control**

See Section 6.1.2 of this NOI

## **5.4 Deleterious Materials**

There are no deleterious or potentially deleterious material on site.

## **5.5 Soils**

There is no topsoil available to be removed and stored.

## **5.6 Concurrent Reclamation**

Reclamation as described in Section 7.0 will be completed concurrent with mining activities as areas become available for reclamation.

## **6.0 Impact Assessment**

### **6.1 Water Resources**

#### **6.1.1 Surface Water**

The proposed pit development and quarry operation is located in the Parleys Canyon drainage basin. Parleys Creek drains from the western slopes of the Wasatch Mountains. It was historically a tributary to the Jordan River, which flows to the Great Salt Lake. With its headwaters located east of Salt Lake City, Parleys Creek has been rerouted, culverted and otherwise altered from its historic condition as it makes its way through Parleys Canyon and across urbanized Salt Lake Valley. Near the project area, Parleys Creek is piped under, and flows parallel to, Interstate 80, which spans much of the narrow canyon bottom.

The existing quarry site was constructed at the mouth of an unnamed, 215-acre southeast-draining tributary to Parleys Creek. The proposed pit would be located within a previously disturbed area, on an adjacent slope to the northeast; the crusher and ancillary facilities would be located at the site of the existing quarry near the drainage outlet. The drainage flows only ephemerally, in direct response to snow melt or isolated rainfall events. There is no evidence of channelized flow from the upper drainage across the disturbed area. Annual rainfall averages between 20 and 25 inches, with most runoff occurring from of April and May snow melt.

Computer modeling was used to estimate a flow volume and peak that would be expected during a 10-year, 24-hour rainfall event occurring in the tributary watershed. The software used for the modeling is entitled SEDCAD<sup>+</sup> Version 3 (Warner and Schwab, 1992). It generates a runoff hydrograph based upon user-defined rainfall and watershed characteristics. Unit hydrograph/Curve Number methodologies are the basic techniques used by the program. The area modeled, and the modeling, is included as an attachment to this NOI.

A total precipitation depth of 2.5 inches for the 10-year, 24-hour storm was obtained from the National Weather Service Atlas for the State of Utah (Miller, et al, 1973). (Information in the atlas was synthesized from many years of rainfall data obtained from weather stations all over the State.) The total precipitation depth was distributed over a synthesized, Type II storm pattern developed by the Soil Conservation Service. Watershed characteristics used as inputs to the model include drainage area, time-of-concentration, and Curve Number. Time-of-concentration is the amount of time it takes for runoff to reach the location of interest from the hydraulically most distant part of the watershed. Curve Number (SCS, 1972) is a watershed descriptor based upon vegetation and soil characteristics. Unit hydrograph methodology was then used to develop a hydrograph, and estimates of total runoff volume and peak flow for the event are thus derived. Table 2.5-1 gives model input and results.

**Table 6.1-1 Watershed Model Input and Results**

Area (acres)	Curve Number	Time of Concentration (hrs)	Rainfall Depth (inches)	Runoff Volume (ac-ft)	Peak Flow (cfs)
215	70	.25	2.5	8	73

Most runoff from these areas appears to be contained within the quarry, or it ponds at the southwest end of the project area near the access tunnel. Storm drains have been installed alongside I-80 to direct runoff to the piped reach of Parleys Creek (see Plates 1 and 2). A small portion of runoff water originating from around the scale house area and the access roads to the processing area, flows down the access road, through the freeway underpass, and into a storm drain adjacent to the underpass on the south side of the freeway.

The quarry is located about two miles east from the mouth of Parleys Canyon (and from the edge of the alluvial valley fill of the Salt Lake Valley). The project area is characterized by Cretaceous and Pennsylvanian sedimentary rock. These formations exhibit moderately low permeability; the primary porosity of the sediments is slight and there is only minimal secondary porosity due to presence of joints or fractures (Hely, et al, 1971).

Both the previous and proposed disturbances would occur in limestone bedrock materials that make up the steep, south facing slopes above Parleys Creek.

There are no springs located upgradient of the mining or processing areas. There are two intermittent springs located in the vicinity of the access road. Water from these springs intersects, flows alongside off, and crosses the pit access road and frontage road and enters the storm drains alongside I-80.

No drill hole records are available to show the presence or absence of a water table or of perched zones of groundwater.

#### **6.1.2 Runoff and Erosion Control**

The steep slopes above the facilities are not conducive to diversion of runoff, so some runoff from upgradient, undisturbed areas does enter the crusher site. There is minimal upgradient contributing watershed area above the proposed pit, so there would be little run-on to the pit. Near the lower end of the site, southwest of the scale house, gradient is toward the southwest. Some runoff from the access roads to the processing area runs on to the frontage road, and travels southwest along the roadway. This runoff enters the storm drain adjacent to the underpass on the south side of the freeway. At times, runoff ponds within the tunnel itself. Much of the existing disturbance has exposed the limestone bedrock, so while runoff may occur, it is typically not very sediment-laden.

From an operational standpoint, Harper intends to minimize runoff and/or erosion wherever possible, through implementation of best management practices, as discussed below.

Roads constructed for access within the rock and talus slopes will be constructed to reduce erosion. An inner roadside ditch will be constructed between the base of the uphill cut face and the flat travel surface, and an outer roadside berm will be constructed between the outside edge of the flat travel surface and the top of the side-cast fill slope. This will prevent runoff from cascading over the roadway and eroding the angle-of-repose road fill material. Runoff from the inner roadside ditches will be directed safely across the road at appropriate intervals.

The frontage road will be maintained so that runoff is directed down the road in a roadside ditch between the frontage road and the interstate, thereby preventing the tire tracks on the travel surface from developing into gullies.

In addition, proper waste disposal, spill cleanup, oil handling, and diesel storage practices will prevent site runoff from contacting pollutants. A UPDES permit application is required for the runoff which enters the storm drain adjacent to the freeway underpass.

### **6.1.3 Water Resources**

There will be no development of water for use in the project for dust control since operational water will be obtained an existing water line owned by Salt Lake City. An existing connection to this water line is available for Harper's use. Culinary water will be from bottle sources.

As determined by the Utah Division of Water Quality, the proposed project will have negligible impacts to ground water quality. Portable toilets, serviced on regular intervals by a contractor, will be used so no sanitary waste system will be installed.

Surface water runoff will be prevented from contacting pollutants or causing excessive erosion through use of best management practices (see Section 6.1.2 of this Notice of Intention).

## **6.2 Air Quality Impacts**

The operations will result in low levels of air emissions of many pollutants, mostly fugitive dust. Harper Contracting has obtained approval to operate from the Utah Division of Air Quality according to Utah Air Conservation Rules. Compliance with these regulations assures compliance with all air quality standards.

### 6.3 Populations of Plants and Wildlife

Due to the disturbed and essentially barren nature of the majority of the project area, it is unlikely that critical wildlife or plant habitat occurs in the quarry. According to Keith Clapier, Botanist with the Wasatch-Cache National Forest, as long as the operation occurs on dry upland sites, there is not much chance of finding threatened, endangered or sensitive (TES) plant species in the area. He noted that the following TES species have a slight potential to occur in the project area, but are normally found in association with wetlands or riparian areas:

<u>Species</u>	<u>Habitat</u>
Ute lady's tresses <i>Spiranthes diluvialis</i>	wetlands - bogs, seeps
Cliff jamesia <i>Jamesia americana</i> var. <i>macrocalyx</i>	cliffs, seeping limestone areas
shooting star <i>Dodecatheon dentatum</i>	seeps, crevices of waterfalls

Two springs are located near the project area, Spring 1 at about 5400 feet elevation above the access road, and Spring 2 at an unknown location north and east of the project area, which flows onto the access road. None of the above listed plants were observed during a site visit June 5, 1995, in the areas surrounding Spring 1, or along the draw containing flow from Spring 2.

The habitat above the quarry is oakbrush, bigtooth maple, chokecherry, and understory plants such as mules ears, Oregon grape, bedstraw, and evening primrose. Deer sign is common and shrubs have been obviously browsed. Near Spring 1, there is also wild rose, and a growth of green algae at what appears to be the spring source.

At the time of the site visit, flow from Spring 2 ran alternately above ground and subsurface in a narrow oakbrush draw, eventually running down the gravel access road.

The oakbrush forested areas above the quarry are considered by Wildlife Biologist Brian Ferebee (Wasatch-Cache National Forest, Kamas District) to be valuable deer and elk winter range, due to the continued decrease of available winter range along the Wasatch Front. No TES wildlife species are known to occur in the vicinity of the quarry.

### 7.0 Reclamation Plan

The rehabilitation and reclamation activities would comply with applicable Salt Lake County and Utah Division of Oil, Gas and Mining requirements. The scope of these activities would be appropriate given the fact that the proposed operations would re-disturb a small portion

of the pre-existing quarry. The rehabilitation and reclamation activities would only treat the disturbances attributable to the operations proposed in this Notice of Intention.

The proposed post-mining land use for the re-disturbed area is continued quarrying operations, or wildlife habitat in the event that operations are not continued.

At the conclusion of the operations, all trash, oil, fuel, equipment, debris and structures would be removed from the site and the site prepared for reclamation. If operations are not continued, rehabilitation and reclamation activities as shown in Plate 4 would commence within one year following cessation of operations, and would include the following:

- 1) A gate is currently in place at the southwestern access to the quarry and adjacent to the underpass, and northwest of operations on the frontage road above the Forest Service access road, to prohibit public vehicle access. These two existing gates would remain in place. An additional gate would be installed on the Forest Service access road. The area would be posted with No Trespassing and Warning signs.
- 2) All remaining stockpiles of loose material would be graded down to slopes of 3h:1v or less. Any trenches would be backfilled to eliminate safety hazards. No other backfilling is proposed.
- 3) Highwalls would be left as is with 3-foot high safety berms in place at the outer edge of each bench surface, provided the terrain is suitable for placement of a berm. The overall slope angle of the new quarry face would be 45 degrees or less.
- 4) Natural drainages would not have to be re-established because none would have been intercepted during operations. Runoff would largely be minimized by the porous nature of the exposed rock surfaces. There would be no stagnant ponds or other impounding structures left after operations.
- 5) Runoff and erosion control would be accomplished by ensuring that new pit access roads constructed by Harper will have the side cast material pulled up onto the surface of the road if material is available. The roads constructed by Harper would be regraded to eliminate the inner roadside ditches, and to convey runoff across the road surface by adequately spaced water bars according to the following table:

<u>Road Grade (percent)</u>	<u>Spacing (feet)</u>
10 or more	200 to 100
6 to 10	300 to 200
4 to 6	400 to 300
less than 4	as needed

The main access road to the pit constructed on Forest Service property is a road that was constructed and existed prior to Harpers involvement with the property. A "Special Use Application" and proposal has been submitted to the Forest Service which describes use of the access road during operations and proposes the existing road not be reclaimed so that it is available for future use.

Angle of repose fill slopes in the operations area will be regraded where possible to 3h:1v to reduce runoff velocity and erosion potential. Roads and other surfaces will be ripped to maximize infiltration and reduce runoff.

The small volumes of runoff expected to collect near the southwest edge of the site are not expected to be present long enough to become stagnant.

- 6) Roads to be reclaimed, and the processing area, would be scarified to increase infiltration of water and enhance revegetation potential. Vehicle access to the scarified areas would be prevented by placing berms at least 6 feet high at the entrances to these features. The total number of access barrier berms to be required is five. No Trespassing signs would be posted at these berms.
- 7) Topsoil is not available on the areas to be disturbed and therefore would not be used in the rehabilitation and reclamation activities.
- 8) Trash, scrap metal, wood, buildings, and any extraneous debris attributed to the active mining would be removed and properly disposed of within one year of cessation of operations.
- 9) The ripped/scarified areas would be treated with a diammonium phosphate fertilizer applied at a rate of 160 pounds per acre. The following seed mix would then be broadcast over these areas and covered by dragging a chain over the seeded areas. Mulching would be accomplished by adding 4-52 - 3 tons of mulch, clean alfalfa hay, or manure at a rate of four to five tons (dry) per acre. If alfalfa hay is used, a means of anchoring will be used (i.e. crimping, netting, etc.). If possible the reseeding program will be conducted in the fall following cessation of activities.



<u>Species</u>	<u>Pounds/acre</u>	<u>Cost \$/lb</u>	<u>Total cost \$/acre</u>
Crested wheatgrass	2	1.50	3.00
Smooth Brome	2	1.10	2.20
Bluestem wheatgrass	1	7.00	7.00
Orchardgrass	1	1.50	1.50
Russian wildrye	1	4.00	4.00
Yellow sweetclover	1	0.50	0.50
Ladak Alfalfa	2	1.50	3.00
Rubber rabbitbrush	1/2	25.00	12.50
Fourwing saltbrush	<u>1</u>	8.00	<u>8.00</u>
Total	11.5		41.70

## 8.0 Variances

The reclamation plans related to the proposed operations indicate that the following variances from the Division of Oil, Gas and Mining are proposed:

### R647-4-111 Highwalls

Regrading the highwalls to 45 degrees or less should not be required because they are located within an overall setting of similar highwalls with relative stability demonstrated by their age. These small highwalls would blend visually with the other existing highwalls. They would not contribute to unstable slope conditions and would not be a safety hazard due to the post-mining limitations on public access.

### R647-4-111 Topsoil Redistribution

Topsoil is not available in the areas to be re-disturbed newly disturbed by the proposed operations and so will not be available for re-distribution.

### R647-4-111 Revegetation

The areas proposed to be re-disturbed are essentially not vegetated at the present time and therefore a revegetation standard of 70 percent is not applicable. The success of the proposed revegetation treatment should be qualitatively based on the overall setting within the larger quarry. Revegetation would be considered successful when completed according to the revegetation plan contained in this Notice of Intention.

~~The mining benches are not proposed to be revegetated. The area to be mined currently has minimal existing vegetation and the vegetation success on these benches would be minimal.~~

~~Existing benches in previous mined areas have little or no vegetation.~~

## 9.0 Surety

All equipment costs include operating costs, maintenance, service, operator and supervision. These equipment costs include mobilization and de-mobilization. Equipment cost estimates for all operations except ripping were determined using Means Heavy Construction Cost Data, 9th Annual Edition. Reference to the particular section of this manual are shown in bold, and are listed in the format; Ref. Means Master Format Division-Master Format Medium Scope-Means Subdivision-Means Major Classification-Means Individual Line Number. Ripping cost were estimated through DOGM assistance and based on the Caterpillar Performance Handbook and 1995 Blue Book information.

## 9.1 Gates and Signs

Gates are already installed at the southwest entrance to the operations adjacent to the underpass, and on the frontage road northwest of the operating area. An additional gate is to be installed at the beginning of the access road which leads to the higher elevations on Forest Service property. Purchase and installation costs for the gate and signs are estimated as follows:

Gate Cost (est.)	\$250.00
Sign Cost (two metal signs, \$25 each (est.))	\$50.00
Labor (two people, 8 hours, \$25/hr)	<u>\$400.00</u>
Total	\$700.00

## 9.2 Regrading

It is estimated that 2000 cubic yards of loose material will remain in the processing area. This material will be regraded using a D8N Caterpillar bulldozer or equivalent. The remaining loose material would be used to fill any trenches and to slope material to 3h:1v.

Cost (50' dozing distance, \$0.96/yd <sup>3</sup> )	\$1,920.00
Ref.Means 022-200-242-5500	

## 9.3 Safety Berms

Three foot high safety berms are to be placed at end of each bench in the pit. The total pit depth is to be approximately 350 vertical feet. The smallest benches to be mined are 15' x 15'. Therefore, the maximum number of benches is 24. The estimated amount of material needed to form the 3' high berms on each bench is 7.5 cubic yards. The berms to be constructed on the access roads are estimated 12' wide by 6' high. The estimated amount of material need to construct barrier berms on access roads is 24 cubic yards. The equipment assumed to be used is a Caterpillar 966 loader or equivalent.

Pit Benches (24 benches, 2 berms/bench, 7.5 yd <sup>3</sup> /berm, \$4.74/yd <sup>3</sup> )	\$1,706.40
Ref. Means 022-200-216-6050	
Access Roads (5 berms, 24 yd <sup>3</sup> /berm, \$4.74/yd <sup>3</sup> )	\$568.80
Ref. Means 022-200-216-6050	
Total	<u>\$2,275.20</u>

#### 9.4 Roads and Operation Areas

Newly constructed and reconstructed roads for access to the pit will have a maximum total length of 3400 feet. The total material to be excavated for construction of these roads is estimated to be 760 cubic yards, and it is estimated that one half of the excavated material, 380 yd<sup>3</sup>, will be recoverable for replacement on the roads. This replacement of material could be completed with a backhoe with a 1 yd<sup>3</sup> bucket.

In areas where side cast material is not available to cover the road surface, the roadway will be ripped with a dozer (Caterpillar 8N9N or equivalent) to facilitate revegetation. For these calculations it is assumed that one half of the total original surface would be ripped to a depth of one foot (total volume 760 yd<sup>3</sup>) (0.7 acres). The remaining one half of the access roads would be covered by pulled up side cast material. Only material which had previously been broken for road construction, or had been placed on the road as road base, would be ripped.

For these cost estimates, this ripping is considered medium hard and adverse conditions. The pit floor and mine benches will be ripped to facilitate revegetation and for runoff control.

The processing area will be ripped to facilitate revegetation and for runoff control. The area is estimated at 4 acres (174,240 ft<sup>2</sup>). Only material which had previously been broken as part of mining operations would be ripped.

For these calculations it is estimated that the ripping depth will be one foot under ideal conditions. The total volume to be ripped is therefore 6450 yd<sup>3</sup>.

Water bars would be constructed on any remaining flat surface of the roads as discussed in Section 7.0 of the Notice of Intention. For the purposes of these calculations; the average grade is estimated to be 15%, the spacing of the water bars will be 150 feet, and the length of roads which would have water bars is the maximum 3400 feet. These calculation parameters show the maximum number of water bars required is 25. The estimated quantity of material in each water bar is 1/4 yd<sup>3</sup> each. The water bars could be constructed with the same backhoe as used for pulling up side cast material.

Side Cast Replacement (380 yd <sup>3</sup> , \$1.97/yd <sup>3</sup> )	\$748.60	
Ref. Means 022-200-238-0200		
Ripping Pit Access Roads (760 yd <sup>3</sup> (0.7 acres, \$1.45/yd <sup>3</sup> ) \$410/acre)	\$1,102.00	\$287.00
Ref. Means 022-200-278-2830		
Caterpillar Performance Handbook, Blue Book		
Ripping Pit Floor (6450 yd <sup>3</sup> , \$1.30/yd <sup>3</sup> )		
Benches (9.9 acres, \$410/acre)	\$8,385.00	\$4,059.00
Ref. Means 022-200-238-2820		
Caterpillar Performance Handbook, Blue Book		
Water Bar Construction (25 water bars, 1/4 yd <sup>3</sup> /ea, \$1.97/yd <sup>3</sup> )	\$12.31	
Ref. Means 022-200-238-0200		
Total	\$10,247.91	\$5,106.91

## 9.5 Cleanup

There are minimal buildings, wood, scrap, etc. associated with the proposed Harper operations since none of the equipment/buildings are permanent installations. All equipment/facilities are designed to be portable and easily moved through the use of a tractor trailer combination, or through the use of a tractor only. A front end loader can be used to load any equipment on to flatbed trailers if the equipment does not have it's own wheels. A front end loader could also be used to excavate and load the portable truck scale.

General site cleanup and trash removal is estimated assuming \$50.00 per acre over the 16 acres to be reclaimed.

Due to the nature of Harper Contracting's business, removal of equipment from sites is a frequent occurrence. Through this experience, Harper has learned that each piece of equipment costs approximately \$300 to relocate. This cost includes two hours to load the equipment and travel time to and from the pit, and the cost of operating the truck including an operator. These costs are Harpers own internal costs. An outside contractor could include up to 15% profit. The total costs per piece of equipment including profit for transporting equipment is \$345.

The number of trips estimated is: 1) the cone and screen are a single trailer unit, 2) the jaw crusher is a single trailer mounted unit, 3) the two radial stackers have their own wheels for a total of two trips, 4) four conveyors could be loaded on to a single flat bed, for a maximum total of two loads, 5) the scale trailer is a single trip, 6) the scale and miscellaneous equipment is a single trip, 7) front end loader is a single trip, 8) a bulldozer is a single trip, and 9) any remaining miscellaneous equipment (fuel tanks, water tanks, etc.) is a single trip. The total number of truck trips to remove operating facilities is eleven.

A front end loader would be utilized during a two day period to completely remove all equipment. These costs are estimated using the Means handbook equipment rental cost. This loader could be operated by the truck drivers or the supervisor in charge of equipment removal.

Supervision would be required for the two day job. The costs of supervision is estimated at \$30 per hour for 8 hours each day.

General Site Cleanup & Trash Removal	\$500.00
Loading/Trucking (11 trips, \$345 per trip)	\$3,795.00
Front End Loader (\$1050 per day, 2 days)	\$2,100.00
Ref. Means 016-400-408-4760	
Supervision (\$30 per hour, 16 hours)	\$480.00
Total	\$6,375.00

## 9.6 Revegetation

Revegetation is described in Section 7.0 of this Notice of Intention. The area to be revegetated includes the 4.2 acre operational area, the 3400 foot reclaimed roadways (1 acre), and the pit floor (5.5 acres), and the mine benches (4.4 acres). The total area to revegetate is 16.1 acres. Itemized costs are estimated as follows:

Material	Unit Costs	Application Costs	Total Cost
Mulch	\$75/ton (\$375/acre)	\$100/acre	\$4,750.00
Fertilizer	\$100/acre	\$50/acre	\$1,500.00
Seed	\$41.70/acre	\$25/acre	\$667.00
		Total	\$6,917.00

## 9.7 Mobilization and DeMobilization

Reclamation costs involving the use of heavy construction equipment were partially determined through the use of "Means Heavy Construction Data, 9th Annual Edition. The equipment costs are total cost which includes; total overhead and profit (including labor), bare equipment costs, and 10% profit. The bare equipment costs include delivery of equipment to the job site. No additional mobilization and demobilization costs are necessary.

## 9.8 Reclamation/Revegetation Supervision

Supervision for reclamation and revegetation is estimated at 4 days (32 hours) at \$30 per hour for a total cost of \$960

## 9.9 Reclamation Cost Summary

The summary of total costs for reclamation is as follows:

<u>Item</u>	<u>Costs</u>
Gates and Signs	\$700.00
Regrading	\$1,920.00
Safety Berms	\$2,275.20
Roads/Operational Areas	\$10,247.91 \$5,106.91
Cleanup	\$6,375.00 \$6,875.00
Revegetation	\$6,917.00 \$11,136.37
Reclamation/Revegetation Supervision	\$960.00
	\$28,435.11 or \$28,500.00 \$28,973.48

#### **9.10 Contingency**

A 10% contingency is added to the projected reclamation cost consistent with DOGM practices for surety calculations. This contingency amount is \$2897.35.

#### **9.11 Escalation**

An escalation factor is included into surety calculations to avoid repeated annual reviews of surety bonds posted. The time frame to be applied to the escalation factor is 5 years at a rate of 2.68% per year. This escalation cost is \$4505.82.

#### **9.12 Surety Amount**

Total surety amount is as follows:

Reclamation Costs	\$28,973.48
Contingency	\$2,897.35
Escalation	\$4,505.82
<b>Total</b>	<b>\$36,376.65</b>

Rounded surety amount in year 2001 **\$36,400**

## **10.0 References**

Caterpillar Inc., October 1994, Caterpillar Performance Handbook, Edition 25

Hely, Allen G., R.W. Mower and C. Albert Harr, 1971. Water Resources of Salt Lake County, Utah. Department of Natural Resources Technical Publication No. 31.

Miller, J.F., et. al., 1973. Precipitation-Frequency Atlas of the Western United States, Volume VII - Utah. NOAA Atlas 2.

R.S. Means Company, Inc., 1994, Means Heavy Construction Data, 9th Annual Edition

Soil Conservation Service, 1972. National Engineering Handbook, Section 4 - Hydrology.

Warner, Richard C. and Pamela J. Schwab, 1992. Civil Software Design, SEDCAD<sup>+</sup> Version 3 software and Training Manual.

## **Plates**

**Plate 1 - Existing Disturbance**

**Plate 2 - Existing Conditions**

**Plate 3 - Final Conditions**

**Plate 4 - Rehabilitation**

**Plate 5 - Existing and Final Disturbance**